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CHAPTER III

METHOD OF THE RESEARCH

A. Design of the Research

This research was an experimental research. According to Creswell (2008: 299), in an experiment, you test an idea (or practice or procedure) to determine whether it influences an outcome or dependent variable. This experimental research used a Quasi Experimental design. There were two variables used in this research: they were independent variable (X) and dependent variables (Y). In this research, the independent variable (X) was Numbered Heads Together technique and dependent variable (Y) was students' reading comprehension of narrative text.

In this design, the researcher used pre- and post-test design. Furthermore, Creswell (2008: 313) says that the researcher can use intact group the experimental and control treatments, give a pre-test to both groups, hold experimental treatment activities with the experimental group only, after that give a post-test to assess the differences between the two groups.

The quasi-experimental design: the pretest-post-test, non-equivalent group design can be presented as follows (Cohen, 2007, p.283):

Table III.1
Quasi Experimental Design

| Group | Pre-Test | Treatment | Post-Test |
|--------------|----------|-----------|-----------|
| Experimental | O1 | X | O2 |
| Control | O3 | - | O4 |

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Where:

- O1 = Pre-test of Experimental class
- X = Treatment
- O2 = Post-test of Experimental class
- O3 = Pre-test of Control class
- O4 = Post-test of Control class

B. Time and Location of the Research

This research was conducted from March to May 2017. This research was conducted at Senior High School 1 Kampar.

C. Subject and Object of the Research

1. Subject of the Research

The subject of this research was the second year students of SMAN 1 Kampar 2016/2017.

2. Object of the Research

The object of this research was the effect of using Numbered Heads Together (NHT) technique on students' reading comprehension of narrative text.

D. Population and Sample of the Research

1. Population

The population of this research was the students of second year at State Senior High School 1 Kampar in 2016-2017 academic years. They consisted of 8 classes. The total number of the second

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year students at State Senior High School 1 Kampar was 270. So, the total number of the second year students in each class is shown in table below:

Table III.2
The Population of the Second Year Students

| NO | CLASS | STUDENTS |
|-------|----------|----------|
| 1 | XI IPA 1 | 35 |
| 2 | XI IPA 2 | 35 |
| 3 | XI IPA 3 | 35 |
| 4 | XI IPA 4 | 35 |
| 5 | XI IPS 1 | 32 |
| 6 | XI IPS 2 | 31 |
| 7 | XI IPS 3 | 32 |
| 8 | XI IPS 4 | 35 |
| Total | | 270 |

2. Sample

The population above was too large to be taken as sample of a research. So, this research took only two classes (70 students) from the total population, they were XI IPA 1 as the experimental group and XI IPA 2 as the control group. The experimental class consisted of 35 students while the control class consisted of 35 students. The technique of sampling that the researcher used in this research was cluster random sampling. In cluster random sampling, the sample units contain groups of elements (clusters) instead of individual members or items in the population (Singh, 2006, p.89). Furthermore, according to Fraenkel and Wallen (2009), the classroom random sampling can be seen as the selection of classes, or clusters of subjects rather than individuals, so that cluster sampling randomly selects class, not

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individuals. The researcher used lottery to get two classes as the sample. To make the total sample clearly, it can be drawn as follows:

Table III.3
The Total Sample of The Second Year Students of SMAN 1 Kampar

| No | Class | Number of Students |
|--------------|----------|--------------------|
| 1 | XI IPA 1 | 35 |
| 2 | XI IPA 2 | 35 |
| Total Sample | | 70 |

E. Technique of Collecting Data

In this research, researcher used test technique to collect the data. The researcher gave the written test to students. The test was used to determine the student's reading comprehension. The type of the test was multiple choice. Multiple choice (four-options) questions is used to be by far the commonest way of assessing reading (Alderson, 2000, p.204). Multiple choice questions require the students to select the best answer out of a number option. The test consisted of 20 items. Every multiple choice item consisted of four answer options (a, b, c, and d).

The test was done twice. The Pre-test was given before the treatment to the experimental class and control class to know the effect of using Numbered Heads Together (NHT) technique on students' reading comprehension of narrative text. And the post test was given after the treatment in experimental and control class to know the effect of using Numbered Heads Together (NHT) technique on students' reading comprehension of narrative text.

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To get the data about the student' reading comprehension, the researcher used assessment based on the indicators of reading comprehension that had been explained in the reading comprehension of narrative text. The indicators consisted of four indicators and each of indicators had five questions. It can be seen from the blue print of the test below:

Table III.4
Blue Print of the Tests

| No | Indicators | Question Number (Try Out) | Question Number (Pre-Test) | Question Number (Post-Test) |
|--------------|---|------------------------------|-------------------------------|--------------------------------|
| 1 | The students are able to identify the meaning of the word of narrative text | 2, 7, 9, 14, 17 | 2, 7, 9, 14, 17 | 2, 5, 10, 13, 19 |
| 2 | The students are able to identify specific information of narrative text | 1, 6, 11, 16, 18 | 1, 6, 11, 16, 18 | 4, 7, 9, 14, 18 |
| 3 | The students are able to identify the generic structure of narrative text | 3, 8, 10, 13, 19 | 3, 8, 10, 13, 19 | 1, 6, 11, 15, 20 |
| 4 | The students are able to identify communicative purpose of narrative text | 4, 5, 12, 15, 20 | 4, 5, 12, 15, 20 | 3, 8, 12, 16, 17 |
| Total | | 20 Items | 20 Items | 20 Items |

After the students did the test, the researcher took the total score from the result of the reading comprehension test. The minimum students passing grade for English subject is 75 at State Senior High School 1 Kampar. According to Arikunto (2009, p.245), the classification of the students' score will be shown below:

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Table III.5
The Classification of Students' Score

| The Score Level | Category |
|-----------------|-----------|
| 80 – 100 | Very Good |
| 66 – 79 | Good |
| 56 – 65 | Enough |
| 40 – 55 | Less |
| 30 – 39 | Fail |

F. Validity and Reliability of the Test

1. Validity of the Test

A test is used to measure the ability, knowledge, achievement or performance of a person. Validity is an important key to effective research (Cohen, 2000, p.105). According to Arikunto (2009), the validity has two kinds; they are logical validity and empirical validity. In this research, the researcher used logical validity. Logical Validity is the validity stated based on the result of experience. It means that the instrument of the research is called valid if the instrument has been examined from the experience such as tryout. It was determined by finding the difficulty level of each item. Regarding with this, Arikunto formulates the formula of item difficulty is as follows:

$$P = \frac{B}{JS}$$

Where

P : index of difficulty or facility value

B : the number of correct answers

JS : the number of examinees or students taking the test

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The formula above was used in order to know if the test is easy or difficult given to the students. As mentioned by Arikunto (2009), the standard value of the proportion of correct can be seen in the table below:

Table III.6
Index Difficulty Level of Instruments

| Proportion Correct (p) | Item Category |
|-------------------------|---------------|
| $P > 0.70$ | Easy |
| $0.30 \leq P \leq 0.70$ | Mean |
| $P < 0.30$ | Difficult |

The difficulty level of an item shows how easy or difficult a particular item in a test is. The standard level of difficulty used is >0.30 and <0.70 . It means that an item is accepted if the level of difficulty is between 0.30-0.70, and it is rejected if the level of the difficulty is below 0.30 (difficult), and over 0.70 (easy).

The calculation of the items difficulty can be seen as in the following tables:

Table III.7
The students are able to identify the meaning of word of narrative text

| Variable | Identify the meaning of word of narrative text | | | | | N |
|--------------|--|------|-----|------|------|----|
| Item No | 2 | 7 | 9 | 14 | 17 | 30 |
| Correct item | 17 | 16 | 15 | 17 | 20 | |
| P | 0.57 | 0.53 | 0.5 | 0.57 | 0.67 | |
| Q | 0.43 | 0.47 | 0.5 | 0.43 | 0.33 | |

Based on the table above, the item numbers of question for identifying the meaning of word of narrative text were 2, 7, 9, 14 and

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17. In term of the item number 2, it obtained the proportion of correct 0.57, the item number 7 obtained the proportion of correct 0.53, the item number 9 obtained the proportion of correct 0.5, the item number 14 obtained the proportion of correct 0.57, and the item number 17 obtained the proportion of correct 0.67. So, based on the standard level of difficulty “p” <0.30 and >0.70 , it was clear that the items for identifying the meaning of word of narrative text were accepted.

Table III.8
The students are able to identify the specific information of narrative text

| Variable | Identify the specific information of narrative text | | | | | N |
|--------------|---|------|------|------|------|----|
| Item No | 1 | 6 | 11 | 16 | 18 | 30 |
| Correct item | 19 | 20 | 19 | 19 | 19 | |
| P | 0.63 | 0.67 | 0.63 | 0.63 | 0.63 | |
| Q | 0.37 | 0.33 | 0.37 | 0.37 | 0.37 | |

From the table above, the item numbers of question for identifying the specific information of narrative text were 1, 6, 11, 16, and 18. In term of the item number 1, it obtained the proportion of correct 0.63, the item number 6 obtained the proportion of correct 0.67, the item number 11 obtained the proportion of correct 0.63, the item number 16 obtained the proportion of correct 0.63, and the item number 18 obtained the proportion of correct 0.63. So, based on the standard level of difficulty “p” <0.30 and >0.70 , it was clear that the items for identifying the specific information of narrative text were accepted.

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table III.9

The students are able to identify the generic structure of narrative text

| Variable | Identify the generic structure of narrative text | | | | | N |
|--------------|--|------|-----|-----|------|----|
| Item No | 3 | 8 | 10 | 13 | 19 | 30 |
| Correct item | 17 | 19 | 18 | 18 | 19 | |
| P | 0.57 | 0.63 | 0.6 | 0.6 | 0.63 | |
| Q | 0.43 | 0.37 | 0.4 | 0.4 | 0.37 | |

Based on the table above, the item numbers of question for identifying the generic structure of narrative text were 3, 8, 10, 13 and 19. In term of the item number 3, it obtained the proportion of correct 0.57, the item number 8 obtained the proportion of correct 0.63, the item number 10 obtained the proportion of correct 0.6, the item number 13 obtained the proportion of correct 0.6, and the item number 19 obtained the proportion of correct 0.63. So, based on the standard level of difficulty “p” <0.30 and >0.70, it was clear that the items for identifying the generic structure of narrative text were accepted.

Table III.10

The students are able to identify the communicative purpose of narrative text

| Variable | Identify the communicative purpose of narrative text | | | | | N |
|--------------|--|-----|------|------|------|----|
| Item No | 4 | 5 | 12 | 15 | 20 | 30 |
| Correct item | 19 | 18 | 19 | 17 | 19 | |
| P | 0.63 | 0.6 | 0.63 | 0.57 | 0.63 | |
| Q | 0.37 | 0.4 | 0.37 | 0.43 | 0.37 | |

Referring to the table above, the item numbers of question for identifying the communicative purpose of narrative text were 4, 5, 12, 15 and 20. The item number 4 obtained the proportion of correct

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0.63, the item number 5 obtained the proportion of correct 0.6, the item number 12 obtained the proportion of correct 0.63, the item number 15 obtained the proportion of correct 0.57, and the item number 20 obtained the proportion of correct 0.63. So, based on the standard level of difficulty “p” <0.30 and >0.70 , it was clear that the items for identifying the communicative purpose of narrative text were accepted.

Table III.11
Validity test

| Question no | Score | Result |
|-------------|-------|--------|
| 1 | 0.63 | Valid |
| 2 | 0.57 | Valid |
| 3 | 0.57 | Valid |
| 4 | 0.63 | Valid |
| 5 | 0.56 | Valid |
| 6 | 0.67 | Valid |
| 7 | 0.53 | Valid |
| 8 | 0.63 | Valid |
| 9 | 0.5 | Valid |
| 10 | 0.6 | Valid |
| 11 | 0.63 | Valid |
| 12 | 0.63 | Valid |
| 13 | 0.6 | Valid |
| 14 | 0.57 | Valid |
| 15 | 0.57 | Valid |
| 16 | 0.63 | Valid |
| 17 | 0.67 | Valid |
| 18 | 0.63 | Valid |
| 19 | 0.63 | Valid |
| 20 | 0.63 | Valid |

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2. Reliability of the Test

Reliability is also a crucial component in a test. Reliability in quantitative research is essentially a synonym for dependability, consistency and replicability over time, over instruments and over groups of respondent (Cohen, 2007, p.146).

Regarding with this, Ary et al (2010) define reliability as the degree of consistency with which it measures whatever it is measuring. Furthermore, in order to obtain the reliability of the test given, the researcher used Cronbach's alpha. The cronbach's alpha comprises a number of items making up a scale designed to measure a single construct and determines the degree to which all the items are measuring the same construct (Cronk, 2008). Therefore, the cronbach's alpha refers to a measurement of internal consistency.

In this research, the reliability of the test was processed by SPSS 17 Version, it can be seen in the following table:

Table III.12
The Reliability of the Test

Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| 1.000 | 2 |

Based on the table above, it can be seen that the score of cronbach's alpha was 1.000. as mentioned by Arikunto (2009) the

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reliability for good classroom achievement tests are expected to exceed 0.0 and closed 1.00. He stated that reliability of test is considered as follows:

0.00 – 0.20 = Reliability is poor

0.21 – 0.40 = Reliability is satisfactory

0.41 - 0.70 = Reliability is good

0.70 - 1.00 = Reliability is excellent

So, the reliability of the tests as calculated above (1.000) was categorized into excellent level.

G. Normality and Homogeneity Test**1. Normality of the Test**

In order to know whether the data has normal distribution or not, the researcher used Kolmogorof-Smirnov method as the formula to analyze the data. In this research, the researcher analyzed the data by using SPSS (Statistical Product and Service Solutions) 17 version program. The SPSS result for Kolmogorov-Smirnov Z test would be interpreted as follows:

$p\text{-value (Sig.)} > 0.05$ = the data is in normal distribution

$p\text{-value (Sig.)} < 0.05$ = the data is not in normal distribution

2. Homogeneity of the Test

The homogeneity test was used to measure whether the data is correlated from true population or not. Data homogeneity of variance test was calculated by using SPSS version 17. The SPSS result for Levene test was interpreted as follows:

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$p\text{-value (Sig.)} > 0.05$ = the data is homogeneous

$p\text{-value (Sig.)} < 0.05$ = the data is not homogeneous

H. Technique of Analyzing Data

The collective data was analyzed by using statistical analysis. The researcher used independent sample T-Test through SPSS 17 version to analyze the data of the research. According to Pallant (2007:205), independent sample t-test is used when the researcher wants to compare the mean scores of two different groups of people or conditions.

In order to find out whether or not there is a significant effect of using Numbered Heads Together technique on students' reading comprehension of narrative text, the researcher needed to provide the effect size or (Eta squared) by manual.

According to Cohen et al. (2007, p.521), "An effect size is simply a way of quantifying the difference between two groups. For example, if one group has had an 'experimental treatment' and the other has not the 'control', then the Effect Size is a measure of the effectiveness of the treatment". Therefore, in calculating the effect size for independent sample t-test, the writer used the following formula:

$$\text{Eta squared} = \frac{t^2}{t^2 + (N_1 + N_2 - 2)}$$

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Where :

t :the t-value (calculated by SPSS);

N_1 :the number in the sample of group one

N_2 :the number in the sample of group

In order to interpret the eta squared values, the guideline quoted from Cohen (1988) in Julie Pallant (2001:184) can be read as follows:

Table III.13
Interpretation of Eta Squared for Effect Size

| No. | Value | Effect |
|-----|-------|-----------------|
| 1. | 0.01 | Small Effect |
| 2. | 0.06 | Moderate Effect |
| 3. | 0.14 | Large Effect |

Statistically the hypotheses are:

$H_a = t_o > t_{\text{table}}$

$H_o = t_o < t_{\text{table}}$

Criteria for hypothesis:

- a. H_a is accepted if $t_o > t_{\text{table}}$ or there is a significant effect of using NHT technique on students' comprehension in reading narrative text at State Senior High School 1 Kampar.
- b. H_o is accepted if $t_o < t_{\text{table}}$ or there is no significant effect of using NHT technique on students' comprehension in reading narrative text at State Senior High School 1 Kampar.